Application Number	:	10/683,534	Confirmation Number: 2616
Applicant	:	Lawrence S. Melvin III	
Filed	:	10 October 2003	
TC/A.U.	:	2123	
Examiner	:	Pierre Louis, Andre	
Docket Number	:	SNPS-0524	
Customer No.	:	36,503	

Summary of Record of Interview
Via Electronic Filing

Summary of Record of Interview

Dear Examiner Pierre Louis:

In response to the interview conducted on **15 November 2007**, please find a Summary of Record of Interview below.

Identification of Claims and Prior Art Discussed

Applicant and Examiner discussed Zhang (USPub 2003/0061587), Shi (USPN 6,519,760), and Pierrat (USPN 6,453,457) as applied to independent claim 1 of the instant application as amended in Applicant's proposed amendment to the Final Office Action dated 22 October 2007. Furthermore, Applicant and Examiner discussed Applicant's arguments as set forth in Applicant's proposed amendment to the Final Office Action dated 22 August 2007.

Arguments of Applicant

In the previous office action, Examiner stated that:

> "Shi et al. substantially teaches the steps of performing a model-based simulation on the layout to generate intensity gradients along edges of features in the layout, ….(*see fig. 1, 3, 5, and 12 and col. 8, lines 24-64, col. 3 lines 52-54*)" (see office action, page 4, ll. 5-8).

Applicant respectfully points out that Figs. 1, 3, 5, and 12 in Shi do not indicate generating intensity gradients which include both magnitude and angle. Although these figures include certain angled components, such as the θ and ϕ in Fig. 1, θ_0 in Fig. 3c, and the 30° in Fig. 12, none of these angles refers to the angle of the intensity gradient. Note that the α and β in Fig. 5 are representing 2-D coordinates instead of angled components. Applicant respectfully points out that the θ and ϕ in Fig. 1 are simply components of **angular-coordinate** for illustrating the definition of a coordinate system, and has nothing to do with an intensity gradient angle (see col. 6, ll.18-25 and Fig. 1 of Shi). In addition, the θ_0 in Fig. 3c indicates the **illumination angle**, which is the angle between the illumination direction with the normal direction of the mask surface (see col. 6-7, ll. 66-15, and Fig. 3 of Shi).

Furthermore, col. 8, lines 24-64 of Shi only discusses that forbidden pitch regions may exist under certain illumination conditions including the pitch, the **illumination angle** and the numerical aperture. Nowhere in this text is the intensity **gradient** mentioned.

Similarly, col. 3, lines 52-54 merely mention "*determining illumination intensities for a given extreme interaction pitch region over a range of illumination angles* (see col. 3, ll. 52-54 of Shi)." Nowhere in this text is the intensity **gradient** mentioned.

Examiner also stated that:

> "Pierrat further teaches the generation of an intensity gradient, which substantially includes both magnitude and angle (s*ee Pierrat et al. fig. 4-6*)" (see office action, page 4, ll. 5-8).

Applicant respectfully points out that the first derivative of the amplitude profile as shown in Figs. 4-6 in Pierrat is different from the intensity gradient. The first derivative of the amplitude profile is a measure of the slope of the profile (see col. 12-13, ll. 67-1 of Pierrat), which is a **scalar** and does not include an angle. However, the gradient of the intensity is a **vector** that includes both the magnitude and the angle (see par. [0047] of the instant application) showing not only the strength of the intensity change but also its direction. Fig. 6 of Pierrat merely shows a test pattern and the corresponding model amplitudes. Nothing in Pierra mentions generating intensity gradient that includes both the magnitude and angle.

Arguments of Applicant

Examiner indicated to Applicant that a new search will be needed.

Respectfully submitted,

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